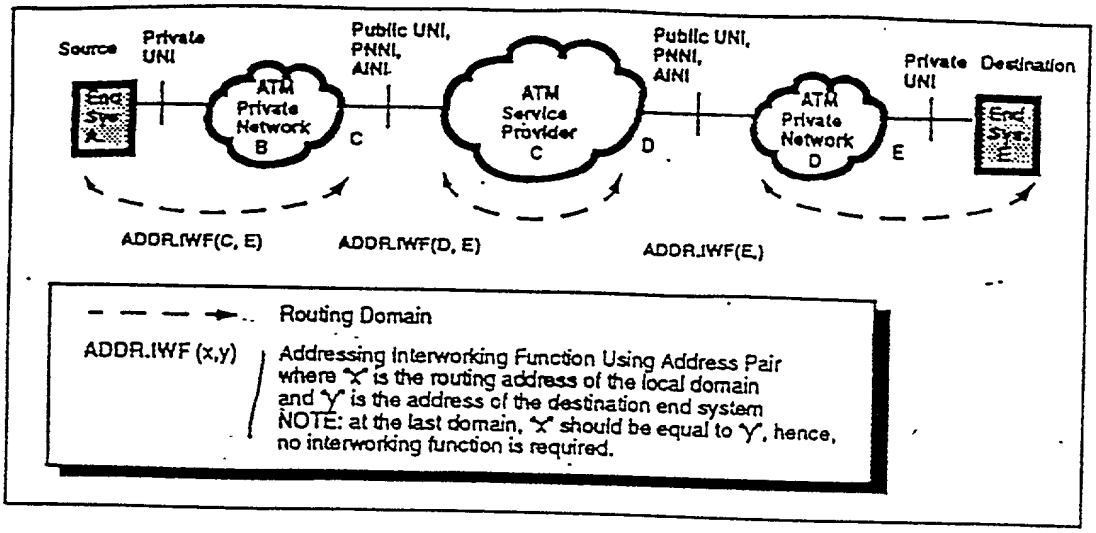

Source
Private UNI
Public UNI, PNNI, AINI
Public UNI, PNNI, AINI
Private UNI
Destination
End Sys. A
ATM Private Network B
C
ATM Service Provider C
D
ATM Private Network D
E
End Sys. E
ADDR.IWF(C, E)
ADDR.IWF(D, E)
ADDR.IWF(E)
Routing Domain
ADDR.IWF (x,y)
Addressing Interworking Function Using Address Pair where "x" is the routing address of the local domain and "y" is the address of the destination end system
NOTE: at the last domain, "x" should be equal to "y", hence, no interworking function is required.

FIG. 1

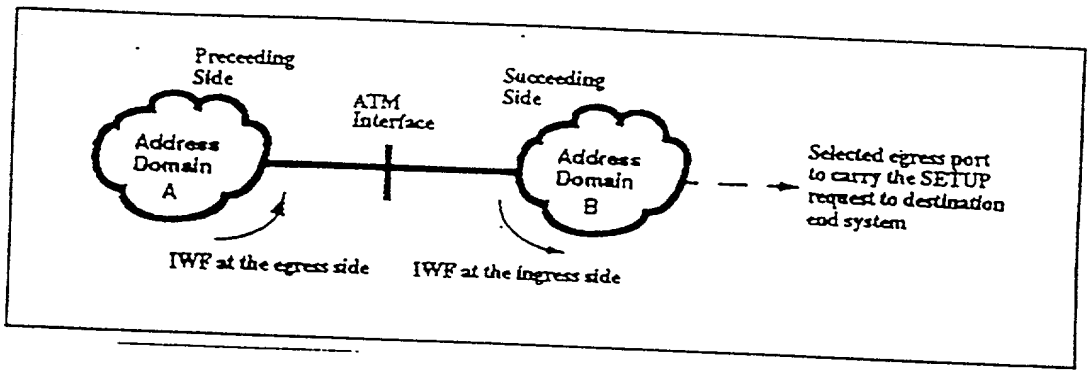

Preceeding Side
ATM Interface
Succeeding Side
Address Domain A
Address Domain B
Selected egress port to carry the SETUP request to destination end system
IWF at the egress side
IWF at the ingress side

FIG. 3

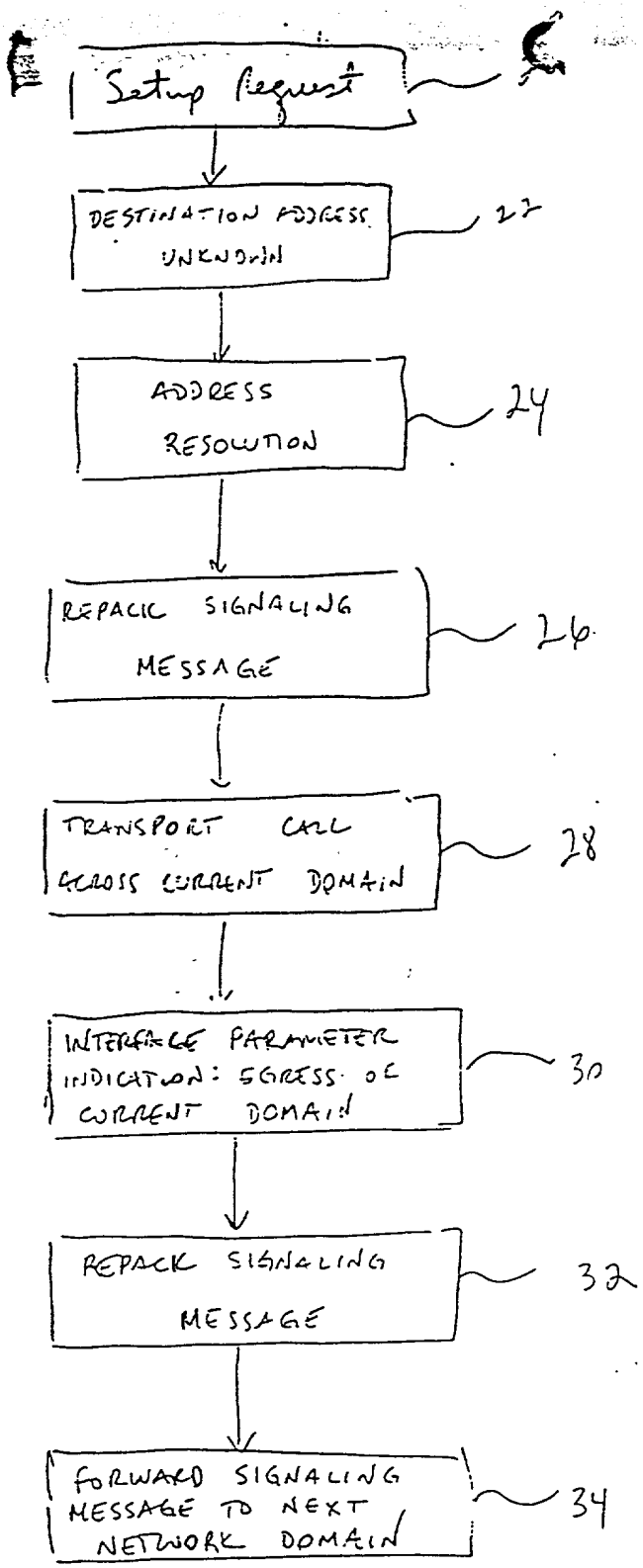

Setup Request
DESTINATION ADDRESS UNKNOWN
22
ADDRESS RESOLUTION
24
REPACK SIGNALING MESSAGE
26
TRANSPORT CALL ACROSS CURRENT DOMAIN
28
INTERFACE PARAMETER INDICATION: EGRESS OF CURRENT DOMAIN
30
REPACK SIGNALING MESSAGE
32
FORWARD SIGNALING MESSAGE TO NEXT NETWORK DOMAIN
34

FIG. 2

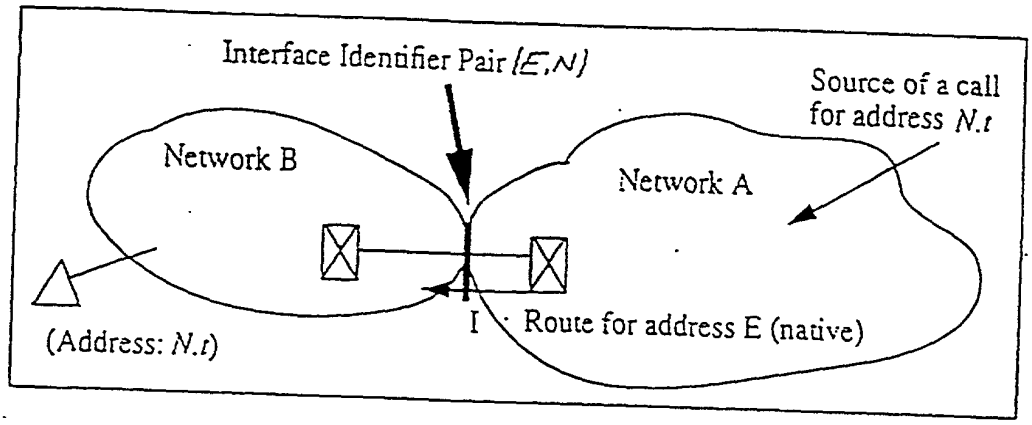

Interface Identifier Pair (E,N)
Source of a call for address N.t
Network B
Network A
(Address: N.t)
I
Route for address E (native)

FIG. 4

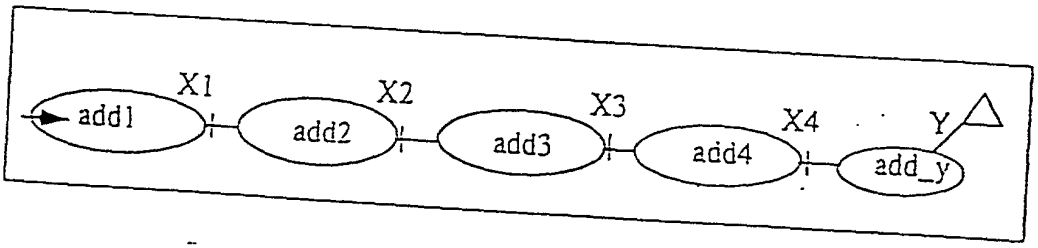

X1
X2
X3
X4
Y
add1
add2
add3
add4
add_y

FIG. 5

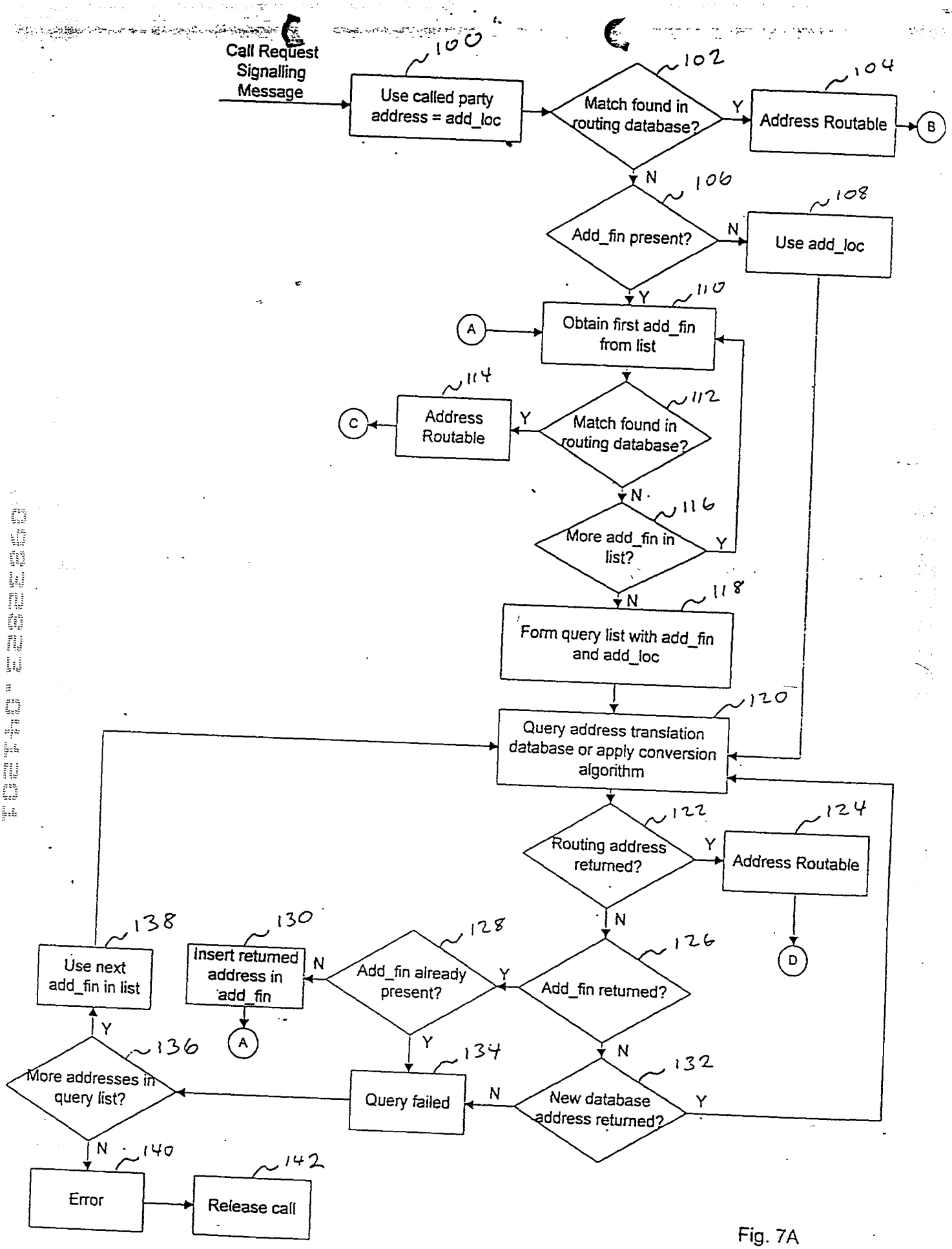

Call Request Signalling Message
100
Use called party address = add_loc
102
Match found in routing database?
Y
104
Address Routable
B
N
106
Add_fin present?
N
108
Use add_loc
Y
110
A
Obtain first add_fin from list
114
C
Address Routable
Y
112
Match found in routing database?
N
116
More add_fin in list?
Y
N
118
Form query list with add_fin and add_loc
120
Query address translation database or apply conversion algorithm
122
Routing address returned?
Y
124
Address Routable
D
N
126
Add_fin returned?
Y
128
Add_fin already present?
N
130
Insert returned address in add_fin
A
Y
134
Query failed
N
132
New database address returned?
Y
N
136
More addresses in query list?
Y
138
Use next add_fin in list
N
140
Error
142
Release call

Fig. 7A

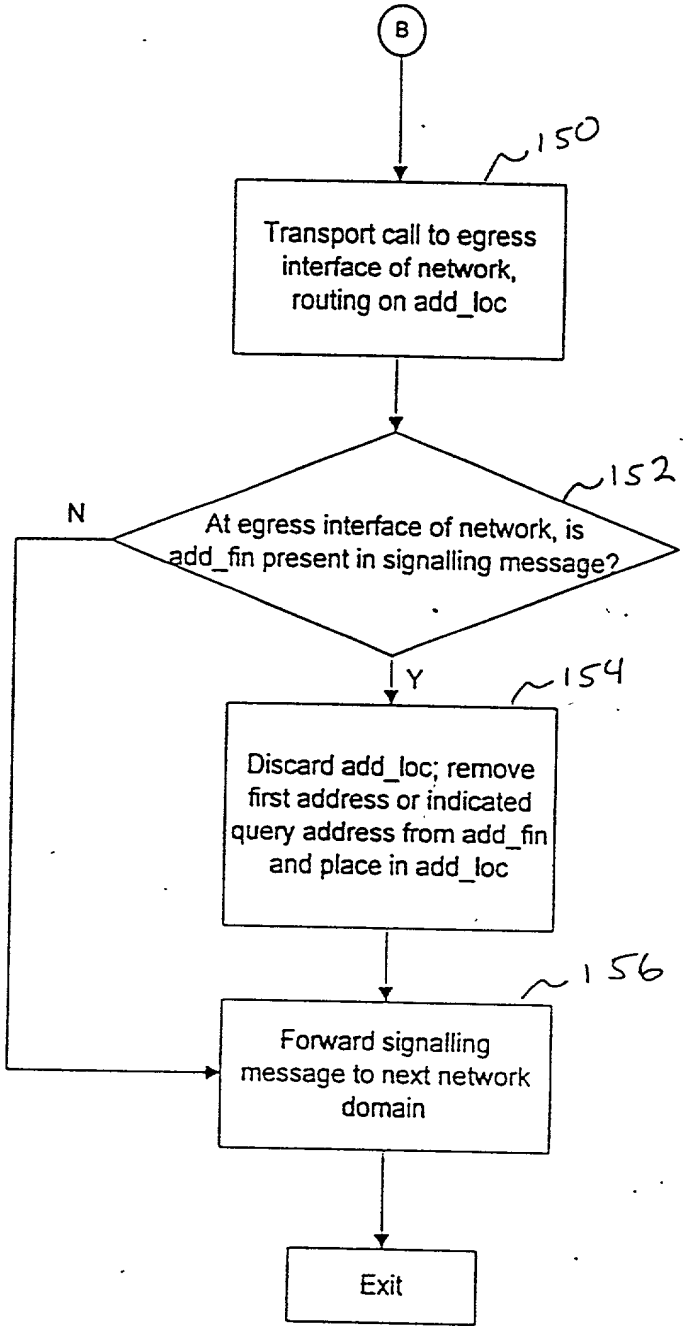

B
150
Transport call to egress interface of network, routing on add_loc
152
N
At egress interface of network, is add_fin present in signalling message?
Y
154
Discard add_loc; remove first address or indicated query address from add_fin and place in add_loc
156
Forward signalling message to next network domain
Exit

Fig. 7B

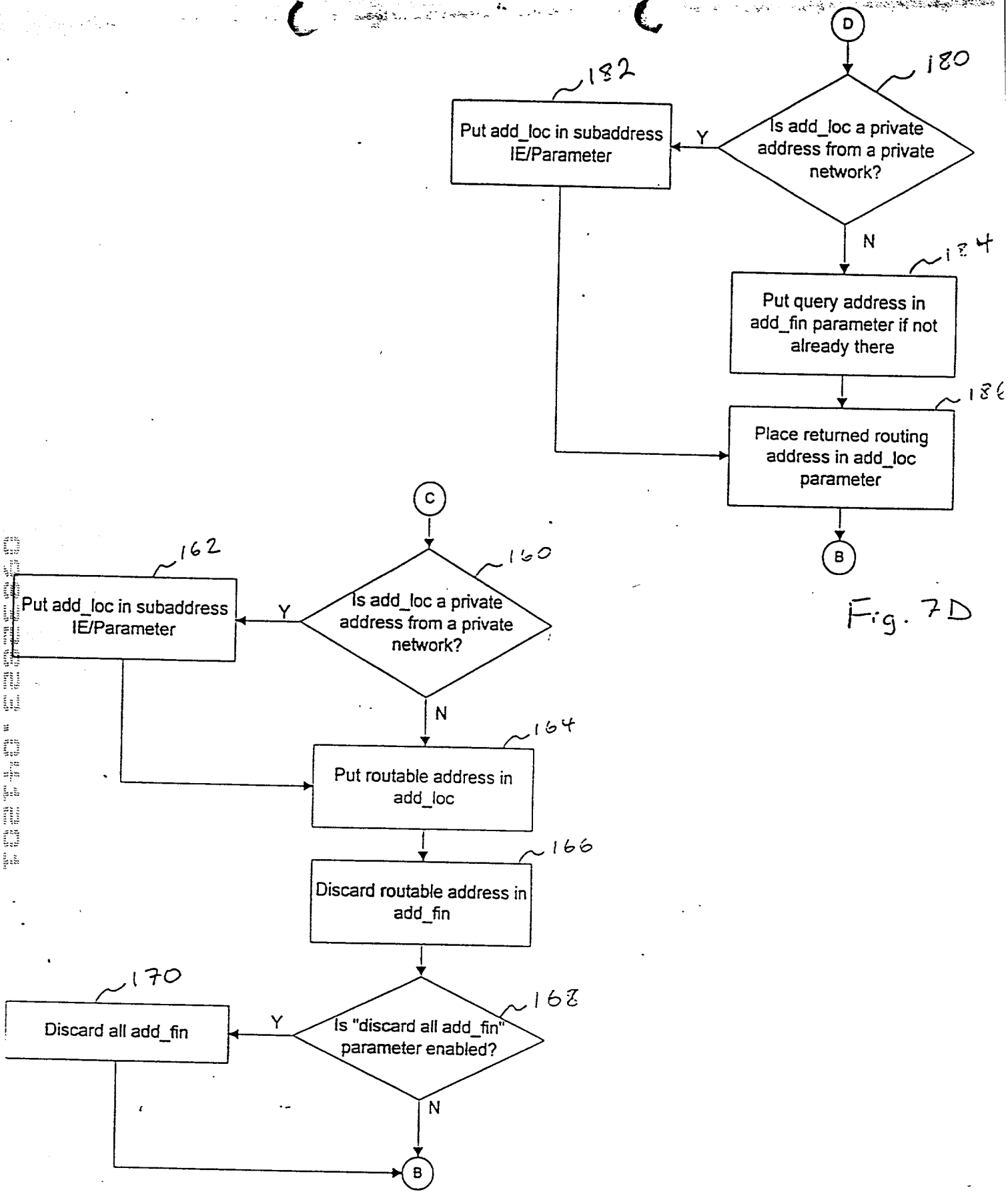

D
180
Is add_loc a private address from a private network?
Y
182
Put add_loc in subaddress IE/Parameter
N
184
Put query address in add_fin parameter if not already there
186
Place returned routing address in add_loc parameter
B
C
160
Is add_loc a private address from a private network?
Y
162
Put add_loc in subaddress IE/Parameter
N
164
Put routable address in add_loc
166
Discard routable address in add_fin
168
Is "discard all add_fin" parameter enabled?
Y
170
Discard all add_fin
N
B

Fig. 7D

Fig. 7C

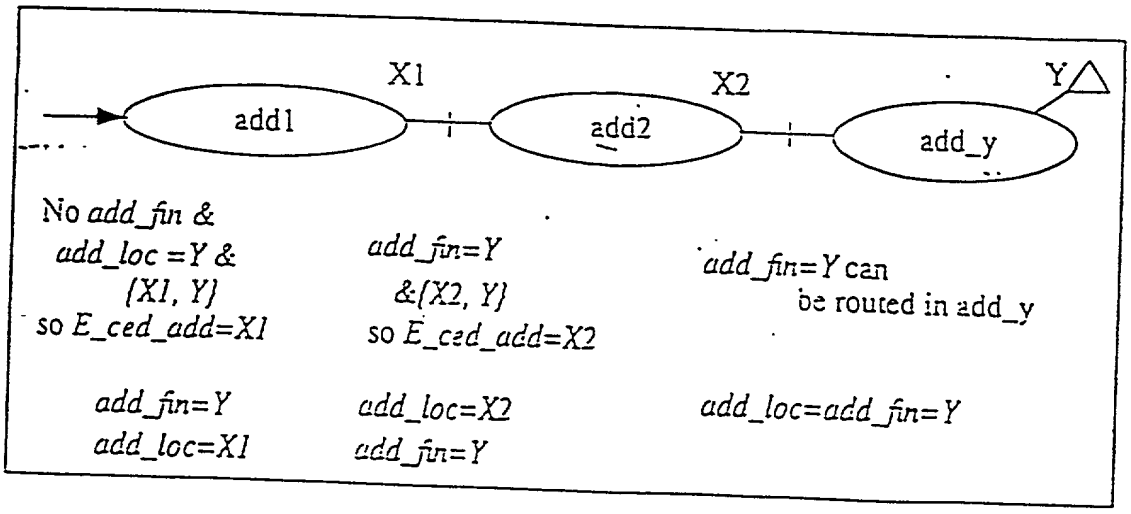

X1
X2
Y
add1
add2
add_y
No add_fin &
add_loc =Y &
{X1, Y}
so E_ced_add=X1
add_fin=Y
&{X2, Y}
so E_ced_add=X2
add_fin=Y can
be routed in add_y
add_fin=Y
add_loc=X1
add_loc=X2
add_fin=Y
add_loc=add_fin=Y

FIG. 6

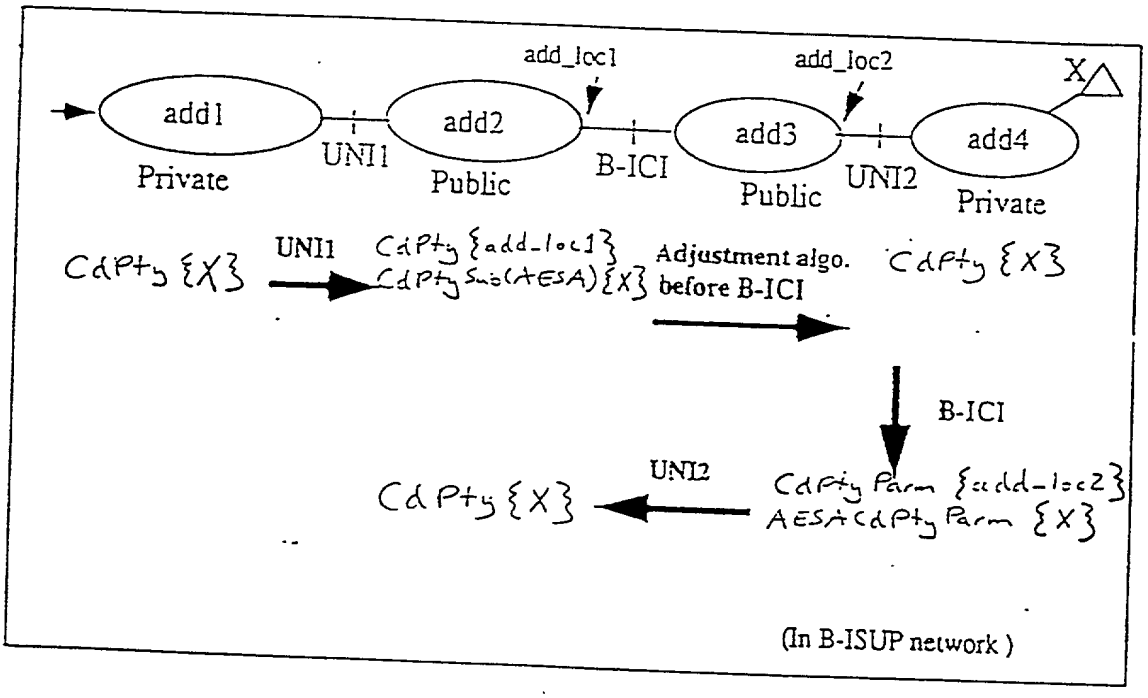

add_loc1
add_loc2
X
add1
add2
add3
add4
Private
UNI1
Public
B-ICI
Public
UNI2
Private
CdPty {X}
UNI1
CdPty {add_loc1}
CdPty Sub(AESA){X}
Adjustment algo.
before B-ICI
CdPty {X}
B-ICI
UNI2
CdPty {X}
CdPty Parm {add_loc2}
AESA CdPty Parm {X}
(In B-ISUP network)

FIG. 8

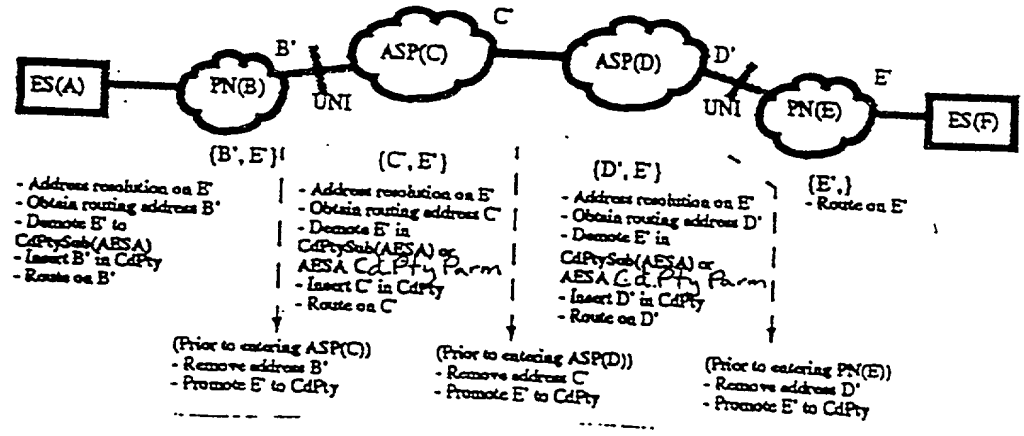

ES(A)
PN(B)
B'
UNI
ASP(C)
C'
ASP(D)
D'
UNI
PN(E)
E'
ES(F)
{B', E'}
- Address resolution on E'
- Obtain routing address B'
- Demote E' to CdPtySub(AESA)
- Insert B' in CdPty
- Route on B'
(Prior to entering ASP(C))
- Remove address B'
- Promote E' to CdPty
{C', E'}
- Address resolution on E'
- Obtain routing address C'
- Demote E' in CdPtySub(AESA) or AESA CdPty Parm
- Insert C' in CdPty
- Route on C'
(Prior to entering ASP(D))
- Remove address C'
- Promote E' to CdPty
{D', E'}
- Address resolution on E'
- Obtain routing address D'
- Demote E' in CdPtySub(AESA) or AESA Cd.Pty Parm
- Insert D' in CdPty
- Route on D'
(Prior to entering PN(E))
- Remove address D'
- Promote E' to CdPty
{E',}
- Route on E'

FIG. 9

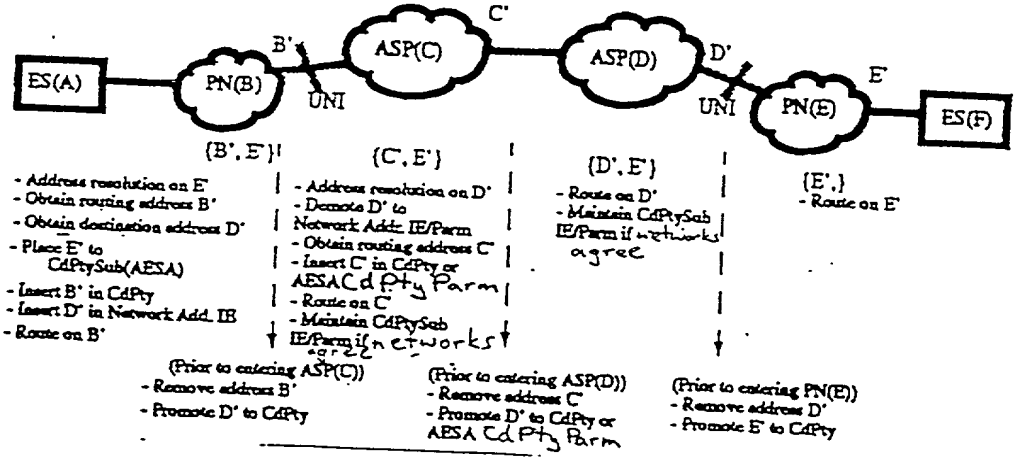
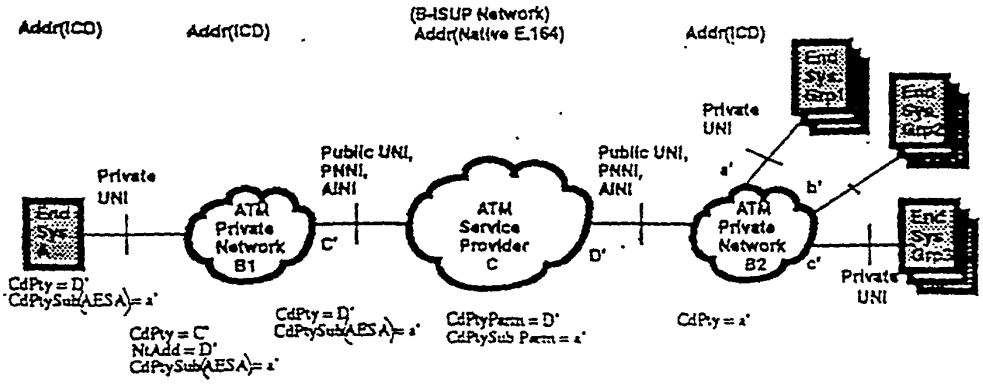

ES(A)
PN(B)
B'
UNI
ASP(C)
C'
ASP(D)
D'
UNI
PN(E)
E'
ES(F)
{B', E'}
- Address resolution on E'
- Obtain routing address B'
- Obtain destination address D'
- Place E' to CdPtySub(AESA)
- Insert B' in CdPty
- Insert D' in Network Add. IE
- Route on B'
(Prior to entering ASP(C))
- Remove address B'
- Promote D' to CdPty
{C', E'}
- Address resolution on D'
- Demote D' to Network Addr. IE/Parm
- Obtain routing address C'
- Insert C' in CdPty or AESA Cd Pty Parm
- Route on C'
- Maintain CdPtySub IE/Parm if networks agree
(Prior to entering ASP(D))
- Remove address C'
- Promote D' to CdPty or AESA Cd Pty Parm
{D', E'}
- Route on D'
- Maintain CdPtySub IE/Parm if networks agree
(Prior to entering PN(E))
- Remove address D'
- Promote E' to CdPty
{E',}
- Route on E'

FIG. 10



NOTE: Only address D' is configured in the public network, in its routing table or TDB (if it is running on PNNI). Even when private network moves/changes its address, D' does not need to be changed or reconfigured.

FIG. 11

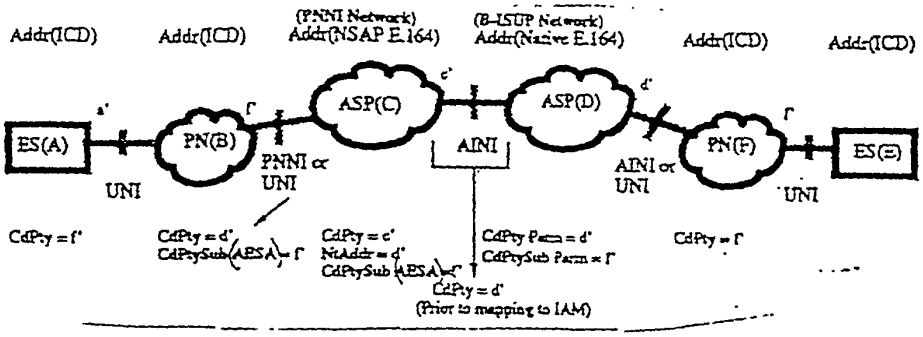
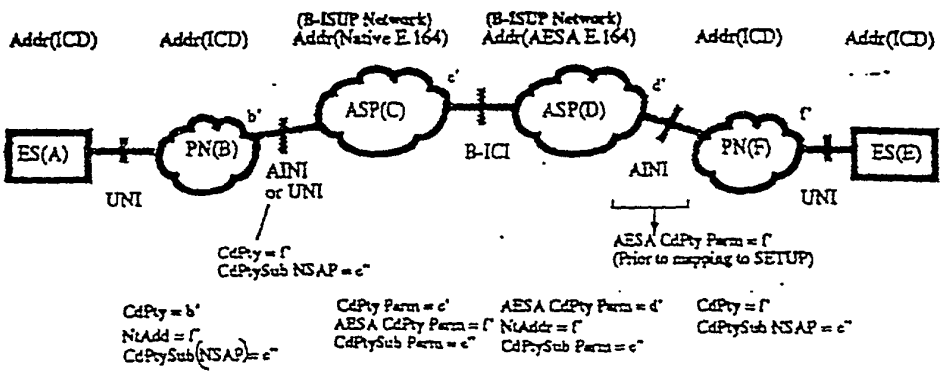
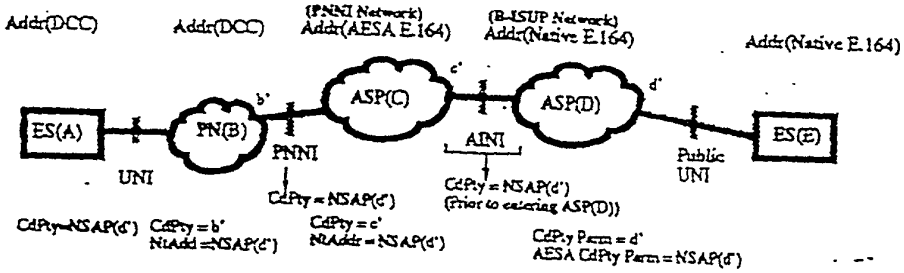


FIG. 12



NOTE: The use of the "CdPtySub(NSAP)" here is to carry the NSAP subaddress which is required by the destination end system ES(E).

FIG. 13



NOTE: The use of the "CdPtySub AESA" here is to carry the NSAP format E.164 AESA with the DSP field set to zero (see UNI 4.0 Spec, guideline #9).

FIG. 14

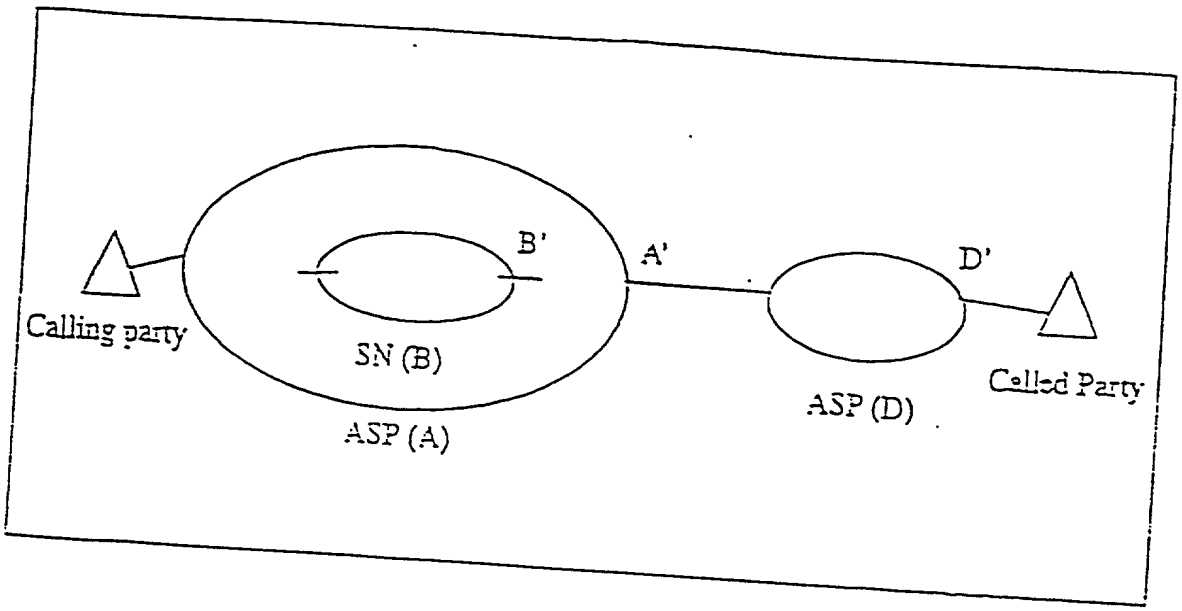


FIG. 15